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NOMENCLATURAL PROPOSAL PHYTOSOCIOLOGICAL NOMENCLATURE

Proposals (26–27): to conserve the names *Nanocyperetalia* Klika 1935 and *Isoetetalia* Braun-Blanquet 1936

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Abstract

After a nomenclatural revision of the higher rank syntaxa of the class *Isoeto-Nanojuncetea*, the conservation of the order name *Nanocyperetalia* against *Nanocypero-Polygonetalia* and a conserved type for the order *Isoetetalia* are proposed.

(26) *Nanocyperetalia* Klika 1935: 292, nom. cons. propos.
Typus: *Nanocyperion flavescentis* Koch 1926: 20–28 (holotypus)
(≡) *Nanocypero-Polygonetalia* Koch 1926: 20, nom. rejic. propos.

(27) *Isoetetalia* Braun-Blanquet 1936a: 142, typus cons. propos.
Typus: *Isoetion* Braun-Blanquet 1936a: 141 (typus cons. propos.)

Taxonomic reference: Euro+Med (2020).

Syntaxonomic reference: Mucina et al. (2016).

Abbreviations: ICPN = International Code of Phytosociological Nomenclature.

Keywords

conserved name, conserved type, ICPN, *Isoeto-Nanojuncetea*, nomenclature, phytosociology, temporary ponds, vegetation

Introduction

The pioneer vegetation of temporary ponds and other periodically flooded soils has claimed the attention of European phytosociologists for almost a century and, therefore, has a complex syntaxonomic and nomenclatural history. This is the case of the three orders described for this type of vegetation (class *Isoeto-Nanojuncetea*) during the 1920s and 1930s, whose nomenclatural vicissitudes are analysed below under the rules of the 4th edition of the ICPN (Theurillat et al. 2021).

Nanocypero-Polygonetalia Koch 1926

In his study on the vegetation of the Linth Plain ("Linthebene"), Koch (1926: 20) introduced the order *Nanocypero-Polygonetalia ['Nanocypereto-Polygonetalia']* with two alliances ("Assoziationsverband"): *Nanocyperion flavescentis* and *Polygono-Chenopodion polyspermi*. The diagnosis of the *Nanocyperion* includes three new associations present in the Linth Plain (*Eleocharitetum ovato-at-*

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ropurpureae ['*Eleocharetum ovato-purpureae*'], *Centunculo-Anthocerotetum punctati* ['*Centunculo-Anthoceretum punctati*'] and *Cyperetum flavescentis*) and references to other associations described from different areas that the author considers as belonging to the new alliance (Koch 1926: 21, 28). The *Eleocharitetum ovato-atropurpureae* is invalid because (1) only a species list is given in Koch; (2) the reference to '*Archidietum [phascoidis]* Jäggli 1922 p.p.' is not accepted as a sufficient diagnosis according to Art. 7, and (3) the other references (Schröter and Wilczek 1902 [recte: 1904], Hayek 1923) contain only species lists. Koch does not provide relevés for the *Centunculo-Anthocerotetum punctati*. On pages 24–25, he discusses its affinities with the wetter aspects of a community validly described by Allorge (1922b) with a synoptic table under the name 'Association des moissons siliceuses [siliceous crops] à *Chrysanthemum segetum* et *Myosurus minimus*', concluding that the latter is a different association not belonging to the *Nanocyperion flavescentis*. Therefore, the name *Centunculo-Anthocerotetum punctati* Koch 1926 is a nomen nudum (Art. 2b), and the *Chrysanthemo segetum-Myosuretum minimi* Allorge 1922 is to be excluded from the original diagnosis of the alliance. It should be noted that Allorge (1922b) is an explicit reprint in book format of the previous publications of Allorge (1921, 1922a) in the Revue Générale de Botanique.

With respect to the *Cyperetum flavescentis*, Koch does not provide relevés but unambiguously refers to the '*Juncus compressus-Parvo-Cyperus*-Assoziation' validly published by Braun-Blanquet (1922: 20) with a relevé containing both *Cyperus flavescens* and *C. fuscus*. Therefore, the *Cyperetum flavescentis* Koch 1926 is a valid name that is automatically the type of the alliance *Nanocyperion flavescentis* (Art. 20). However, it is a superfluous name (Art. 29c) for the *Junco compressi-Parvo-Cyperetum* Braun-Blanquet 1922 (Mucina et al. 2016: 178).

In the description of the *Cyperetum flavescentis*, Koch also recognizes, as floristically related but syntaxonomically independent unit, the 'Association à *Cicendia filiformis* et *Stereodon arcuatus*' described by Allorge, with direct bibliographic references to Allorge (1922b), Gadeceau (1909) and Gaume (1924). Allorge's original diagnosis of the association contains 14 presence-absence relevés of vascular plants (table XXI) that would meet Art. 7. Nevertheless, *Stereodon arcuatus* Lindb. (*Calliergonella lindbergii* (Mitt.) Hedenäs in modern floras) is absent from the table XXI because bryophyte species "present in the association" are listed separately in the text, without an indication of their frequency meeting Art. 7 or a statement about their presence in table XXI. Therefore, the name *Cicendio filiformis-Stereodontetum arcuati* Allorge 1922 is invalid according to Art. 3f Note 1, which requires that the name-giving taxa must be present in the relevés or synoptic tables. Allorge also uses the form 'association à *Cicendia filiformis*' in the text, always in descriptive sentences and in most cases close to sentences in which the form used is 'association à *Cicendia filiformis* et *Stereodon arcuatus*', the latter being the form used in the header of the section describing the association and in the header of table XXI. Therefore, it is clear that the double name is the one really proposed by Allorge, and the form 'association à *Cicendia filiformis*' is a literary shortcut to refer to the community, not a true alternative name in the sense of Art. 30a. Gadeceau (1909: 117–118), cited for the association both by Allorge (1922a) and Koch (1926), contains only a species list under the name '*Pusillaejuncetum*' that is invalid according to Arts. 2a and 2b. Gaume (1924: 169), for his part, provides a synoptic table under the name 'Association à *Cicendia filiformis* (*Cicendietum*)', validating in this way Allorge's association to whom reference is made, and whose correct name is, therefore, *Cicendietum filiformis* Allorge ex Gaume 1924. Finally, the '*Isolepis-Stellaria uliginosa*-Assoziation' introduced by Koch (1926: 28) is another nomen nudum (Art. 2b).

The diagnosis of the *Polygono-Chenopodion polyspermi*, the second alliance of the order, contains (1) the association *Bidentetum tripartitae* Koch 1926, validly published with a relevé on page 29, and unambiguous bibliographical references to (2) the 'association à *Bidens tripartita* et *Brassica nigra*', validly described by Allorge (1921) with a synoptic table; (3) to Gaume (1924) who described an 'association à *Bidens tripartita*' with a species list (Art. 2b); and (4) to Braun-Blanquet (1921, 1923) who introduced the nomen nudum '*Panico-Chenopodietum polyspermi*' (Art. 2b). However, because the valid elements of the alliance (*Bidentetum tripartitae* Koch 1926 and *Bidenti tripartitae-Brassicetum nigrae* Allorge 1921) do not contain *Chenopodium polyspermum*, the name *Polygono-Chenopodion polyspermi* is invalid according to Art. 3f (Mucina et al. 2016: 205).

In conclusion, the original diagnosis of the order *Nanocypero-Polygonetalia* Koch 1926 includes only the *Nanocyperion flavescentis* as a valid alliance. Among the valid elements of the alliance, *Polygonum* species are lacking in the original diagnosis of the *Cyperetum flavescentis*. However, in the original diagnosis of the *Cicendietum filiformis* Allorge ex Gaume 1924, *Polygonum hydropiper* occurs in Gaume's synoptic table; besides, *P. minus* is also present in table XXI of Allorge (1922b) to whom Gaume refers. Therefore, Koch validly published the order's name according to Art. 3f, and its holotype is the *Nanocyperion flavescentis* Koch 1926.

Nanocyperetalia Klika 1935

In a study about the Central European vegetation on temporarily flooded soils, Klika (1935) revised the alliance *Nanocyperion flavescentis* with unambiguous bibliographical references to Koch (1926) on pages 298–299 and 301, subordinating it to the order '*Nanocyperetalia*' as the sole alliance on page 292. No rationale is given for the new name of the order. The renaming was probably due to a change of the syntaxonomic concept since Klika subordinated the alliance *Polygono-Chenopodion polyspermi* to a

different order (*Chenopodietalia*). In any case, the *Nanocyperetalia* Klika 1935 is a valid name and its holotype is the *Nanocyperion flavescentis* Koch 1926. However, the order's name is superfluous since it contains the type of the earlier *Nanocypero-Polygonetalia* Koch 1926 (Art. 29c). According to the indication provided on the front page of the issue 2/3 of Beihefte zum botanischen Centralblatt volume 53, Klika's paper was published in May 1935.

Isoetetalia Braun-Blanquet 1936

The order *Isoetetalia* was validly published by Braun-Blanquet in volume 47 of the Bulletin de la Société d'Étude des Sciences Naturelles de Nîmes (Braun-Blanquet 1936a) as well as in the Communication 42 of the SIGMA (Braun-Blanquet 1936b). Text and format are identical in both publications, except for the page numbering. The Communication is dated 'January 1936' on the cover page and contains a reference to the Bulletin on the last page: 'Extrait du [reprint from] Bulletin de la Société d'Étude des Sciences Naturelles de Nîmes, t. XLVII, 1930–35'. An additional evidence that the Communication is a reprint of the Bulletin is that in both publications a reference to the 'Communication de la Station Intern. de Géobotanique Méditerranéenne et Alpine N° 40' is given under the title on the first page, but the actual number of the Communication series is 42, suggesting that it was postponed until the Bulletin was published, leading to an earlier publication of volumes 40 and 41 of the Communications that are dated 1935 and 1936, respectively. The precise date of publication of volume 47 of the Bulletin is unknown. However, on page 252, there is a reference to a meeting of the Société held on 29 November 1935. Hence, it is very unlikely that the volume could have been printed and distributed before 1936 (D. Kania, personal communication). Although in many publications, including the EuroVegChecklist (Mucina et al. 2016), Braun-Blanquet's publication is dated 1935, in the 4th edition of the ICPN (Theurillat et al. 2021) the date has been corrected to 1936. The order *Isoetetalia* had been mentioned in previous publications (Braun-Blanquet 1931, Moor 1935), but without a sufficient original diagnosis (Art. 2b).

The original diagnosis of the order in Braun-Blanquet (1936a) contains three alliances. One is the *Isoetion* Braun-Blanquet 1936 whose description covers almost the entire publication. It includes six valid associations together with one provisional association. The second alliance, the *Preslion cervinae*, is a nomen nudum (Art. 2b) validated later by Moor (1937) (see Silva et al. 2021). The third alliance is the *Nanocyperion flavescentis* Koch 1926, with an unambiguous bibliographical reference to Koch (1926) on p. 142. Since the *Nanocyperion flavescentis* is the type of the earlier name *Nanocypero-Polygonetalia*, the name *Isoetetalia* is superfluous (Art. 29c). Consequently (Art. 18b), the alliance *Nanocyperion flavescentis* Koch 1926 is the type of the name *Isoetetalia*.

Conservation of the order names *Nanocyperetalia* and *Isoetetalia*

Until now, it was considered that the *Nanocypero-Polygonetalia* was an invalid name (Mucina et al. 2016), or a name to be rejected due to its heterogeneous content (Moor 1935, 1937, Braun-Blanquet 1936a). Currently, the alliance *Nanocyperion flavescentis* is included in the class *Isoeto-Nanojuncetea* while the original valid content of Koch's *Polygono-Chenopodion polyspermi* would belong to the *Bidentetea* (Mucina et al. 2016). Authors that recognize only one order in the *Isoeto-Nanojuncetea* have given priority to *Isoetetalia* over *Nanocyperetalia* following Moor (1937). However, the majority of authors after 1970 recognizes two or more orders (see Brullo and Minissale 1998 for a synopsis of the different syntaxonomic systems), including the EuroVegChecklist (Mucina et al. 2016). According to such a syntaxonomic concept, the Mediterranean communities flowering in spring and early summer are included in the order *Isoetetalia*, assuming that its nomenclatural type would be automatically the *Isoetion* according to Art. 20, while the temperate European and Mediterranean communities flowering in late summer and autumn are included in the order *Nanocyperetalia*. However, both names *Nanocyperetalia* Klika 1935 and *Isoetetalia* Braun-Blanquet 1936 are homotypic superfluous names because their original diagnoses include the nomenclatural type of the *Nanocypero-Polygonetalia* Koch 1926. This name cannot be considered an ambiguous name (Art. 36) because it has been rarely used, nor a dubious name (Arts. 37 and 38) because the nomenclatural type of its type alliance, the *Cyperetum flavescentis* (for which the correct name is *Junco compressi-Parvo-Cyperetum*), has been widely accepted and used.

Accepting the consequences of the strict application of the nomenclatural rules would imply important changes, because a new syntaxon name would be needed for the traditional concept of the *Isoetetalia*. Moreover, it would make the future understanding of almost a century of phytosociological literature on this type of vegetation extremely difficult, because *Isoetetalia* and *Nanocyperetalia* are nomenclatural synonyms of *Nanocypero-Polygonetalia*, a name disused for the last 90 years. Brullo and Minissale (1998) list 130 papers dealing with the syntaxonomy of *Isoeto-Nanojuncetea*, a number that has probably multiplied in the last 20 years given the relevance of this habitat type for biodiversity conservation (Foucault 2013a, b, Šumberová and Hrivnák 2013). Conserving the name *Nanocyperetalia* against *Nanocypero-Polygonetalia* would not solve the problem of the *Isoetetalia* for which a new name should be published. However, the introduction of the new Art. 53 in the ICPN (Theurillat et al. 2021) allows preserving the common use of a name by choosing a nomenclatural type other than the one determined by the application of the rules. Therefore, we propose here to

conserve the name *Isoetetalia* Braun-Blanquet 1936 with a conserved type, the *Isoetion* Braun-Blanquet 1936 that has been traditionally considered the type of that order. At the same time, we propose to conserve the name *Nanocyperetalia* Klika 1935 against the disused name *Nanocypero-Polygonetalia* Koch 1926.

Author contributions

All authors have contributed to the nomenclature research and the critical revision of the manuscript.

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